

REMARKS

Reconsideration of the merits of the presently claimed invention is respectfully requested in light of the Amendment above and the remarks below.

Claim 11 has been amended. Upon entry of this Amendment and Response, claims 1-18 will remain pending in this application. No new matter has been added by way of amendment to claim 11.

Objection to the Specification

The specification has been objected to for lacking an abstract of the disclosure as required by 37 CFR 1.72(b). Applicants traverse the rejection to the extent it is maintained.

Applicants have submitted herewith an abstract on a separate sheet as required 37 CFR 1.72(b). Applicants respectfully request that the abstract be added to the specification. Upon entry of the abstract, withdrawal of the objection is respectfully requested.

No new matter has been added in the Abstract. The Abstract provides a brief description of subject matter previously disclosed in the specification and originally filed claims.

Rejections under 35 U.S.C. § 112

Claims 2-4 and 11-18 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants traverse the rejection to the extent that it is maintained.

Regarding claims 2-4, the Office Action stated that the claims are vague because they do not recite any method steps. Claims 2-4 depend from claim 1, which recites active method steps. As such, Applicants assert that claims 2-4 are clear and definite.

Regarding claims 4 and 14, the Office Action stated that the claims are vague and in conflict with claims 1 and 11, because claims 4 and 14 recite surface electrodes and claims 1 and

11 recite "coupling" or "applied" to a nerve root. Claim 11 has been amended to recite "coupled" rather than "applied." Applicants assert that one of skill in the art would understand that a surface electrode may be coupled to a nerve root.

Regarding claim 11, the Office Action stated that the claim was indefinite because it sounded as if there was a positive connection to the body. The claim was amended as suggested by the Examiner.

In light of the above Amendment and remarks, withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, to claims 2-4 and 11-18 is respectfully requested.

Rejections Under 35 U.S.C. § 102

Brindley (US 3,870,051)

Claims 1, 5, 8, and 11 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Brindley (US 3,870,051). Applicants traverse the rejection.

The Office Action mailed February 28, 2003 stated that Brindley is coupled to the complete sacral nerve and thus is coupled to both dorsal and ventral roots. The Office Action further stated that different stimulation parameters were taught by Brindley to affect both the dorsal and ventral root.

Brindley does not teach each and every limitation of the presently claimed invention and thus does not anticipate the claims. For example, Brindley does not teach stimulation of sacral dorsal roots and, in fact, teaches away from stimulation of dorsal sacral roots. Brindley never mentions stimulation of dorsal roots of the sacral nerve. For example, in the abstract, column 1, line 39, column 1, line 65, etc., only ventral roots are discussed. In addition, at column 1, lines 38-41, Brindley states, "An advantage of the presently proposed control is that the sacral ventral roots are free from sensory fibres with the result that stimulation is unlikely to lead to pain." As stated in the present application at page 5, line 27 – page 6, line 1, dorsal roots are primarily sensory. Thus, Brindley teaches away from stimulation of dorsal roots.

Regarding the differential stimulation parameters mentioned in the Office Action, it appears that Brindley discusses the differential parameters as being designed to differentially affect motor control of the bladder muscle relative to the sphincter muscle. *See, e.g.*, column 1, line 52 – column 2, line 7.

As Brindley does not teach at least one element of claims 1, 5, 8, and 11, which recite either directly or indirectly stimulation of a dorsal root, withdrawal of the rejection is respectfully requested.

Fang et al. (US 5,199,430)

Claims 1-3, 8, and 11-13 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Fang (US 5,199,430). Applicants traverse the rejection.

Fang et al. do not teach each and every limitation of the presently claimed invention and thus does not anticipate the claims. For example, Fang et al. do not teach stimulation of sacral dorsal roots. Fang et al. teach application of electrical pulses to control small and large fibers arising from ventral roots. *See, e.g.*, abstract. In addition, the detailed description of Fang et al., at columns 3-6, provides further details of how the control of ventral roots is accomplished. There is no teaching in Fang et al. of application of an electrical pulse to sacral dorsal roots. As such, withdrawal of the rejection is respectfully requested.

Tanagho et al. (EP 0245547 A1)

Claims 1, 8, and 11 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Tanagho et al. (EP 0245547 A1). Applicants traverse the rejection.

Like Bindley, Tanagho et al. teaches away from stimulation of sacral dorsal roots, an element recited either directly or indirectly in claims 1, 8, and 11 of the present application. For example, Tanagho et al. teach that that stimulation of sacral ventral roots independently of dorsal roots may be desirable. *See, e.g.*, page 3, lines 55-58 of Tanagho et al., where it is stated that “motor nerve bundles can be stimulated without inducing pain and without generating impulses along the sensory passageway.” Tanagho et al. further teach that the ability to isolate and

stimulate isolated portions of the sacral nerve is desirable to alleviate pain (i.e., avoid stimulation of dorsal roots as discussed above) and to achieve specific responses of end organs (i.e., stimulation of ventral roots). *See, e.g.*, page 4, lines 9-11. Further, Tanagho et al. teach, at page 6, lines 1-3, describe a procedure where the dorsal root is sectioned and an electrode is placed on the ventral root. Clearly Tanagho et al. teach away from application of an electrical pulse to a sacral dorsal root. As Tanagho et al. teach away from an element of claims 1, 8, and 11 of the presently claimed invention, withdrawal of the rejection is respectfully requested.

The Office Action referred to page 9, line 45 of Tanagho et al. and specifically pointed to the statement that the pulses may “overlap.” Applicants fail to recognize the relevance of this portion of the cited reference. If the Examiner maintains the rejection in light of this portion of Tanagho et al., clarification as to the relevance to claims 1, 8, and 11 of the present application is respectfully requested.

#### Rejections Under 35 U.S.C. § 103

Claims 4 and 14 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Brindley (or Fang et al. or Tanagho et al.). Applicants traverse the rejection.

Brindley, Fang et al., and Tanagho et al. do not teach or suggest the invention claimed in claims 4 and 14 of the present application. Claims 4 and 14 depend from claims 1 and 11, respectively. Claims 1 and 11 recite contacting an electrode with a sacral dorsal root. As discussed above regarding the rejections under 35 U.S.C. § 102, the cited references do not teach and/or teach away from contacting an electrode with a dorsal root. Thus, upon reading the cited references, one skilled in the art would not arrive at the presently claimed invention. Withdrawal of the rejection is respectfully requested.

Claims 5-7, 9, 10, and 15-18 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Fang et al. Applicants traverse the rejection.

Fang et al. do not teach or suggest the suggest the invention claimed in claims 5-7, 9, 10, and 15-18 of the present application. Claims 5-7, 9, 10, and 15-18 ultimately depend from either

claim 1 or claim 11. Claims 1 and 11 recite contacting an electrode with a sacral dorsal root. Fang et al. do not discuss, much less suggest, contacting an electrode with a dorsal root. Thus, upon reading Fang et al., one skilled in the art would not arrive at the presently claimed invention. Withdrawal of the rejection is respectfully requested.

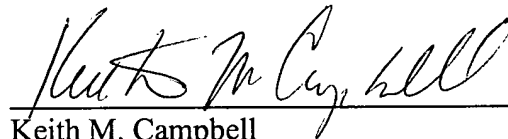
Conclusion

Having addressed all objections and rejections, Applicants submit that the present application is in condition for allowance. Notice to that effect is earnestly solicited. Should the Examiner have any questions, the Examiner is invited to contact the undersigned.

In view of the foregoing amendments, it is believed that the application is now in condition for allowance and notice of same is respectfully requested.

Respectfully submitted,

Date: February 18, 2004



Keith M. Campbell  
Registration No. 46,597  
MEDTRONIC, INC.  
710 Medtronic Parkway NE, M.S.: LC340  
Minneapolis, Minnesota 55432-5604  
Telephone: (763) 505-0405  
Facsimile: (763) 505-0411  
**CUSTOMER NO.: 27581**